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SELF-DIRECTED LEARNING PROJECTS OF PRACTICING NURSES: A QUALITATIVE ANALYSIS

by

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©

A THESIS

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DEDICATION

This thesis is dedicated
in memory of my mother
and
to my father.

ABSTRACT

The purposes of this study were 1. to examine the processes and factors involved in planning and conducting job-related, successful self-directed learning projects undertaken by practicing nurses who were perceived as effective self-directed learners and 2. to develop a conceptual structure of the self-directed learning project to provide focus for future research and guidance for facilitating self-directed learning projects. The study did not address relative effectiveness or efficiency of approaches in self-directed learning.

An account of one self-directed learning project was obtained from each of six nurses using the open-ended interview method. The constant comparative method of the grounded theory approach of Glaser and Strauss was used to analyze the data.

The number of hours involved in planning and constructing each learning project varied from 36 to 175. A conceptual model of the self-directed learning project was developed by the researcher. The model is consistent with general teaching models which appear in program planning and design literature.

The model consists of three phases: 1. the pre-active phases including stimulus to begin, perception of need to learn and motivation to act; 2. the active phase including goal formulation, planning, inmplememntation and formative

evaluation; and 3. the summative phase including summative evaluation. Context and internal factors influence all phases of the learning project. The phases occur in sequence, however, there is considerable variation in sequencing within the phases, particularly the active phase where the components mentioned may occur repeatedly in varying order and are mutually influential. For example, formative evaluation influences evolving goal formualtion, planning and imnplementation.

Examples of varying activities and decisions within each category and sub-category were discussed. Although a general model emerged from the data, each individual's learning project was uniquely adapted to life style, job demands, learning beliefs and learning style.

All of the subjects obtained help from individuals in their work and home environments during the course of their learning project. These individuals, by listening and discussing with the subjects, provided extensive assistance in the formative evaluation process. Other people also provided more general encouragement and suggested learning resources, mostly print.

Self-directed learning is necessary for nurses to maintain competent practice. The recognition of self-directed learning among nurses and increased efforts toward preparing and assisting self-directed learners are recommended.

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CHAPTER ONE

INTRODUCTION

Significance and Nature of the Study

Learning does not end when individuals complete their formal education. Researchers have found that adults are very active learners. Evidence from previous studies suggests that more than 70% of adults have engaged in at least one learning project in the year prior to reported surveys (Tough, 1978). Although the foci of learning projects pertained to all aspects of life, career or work related topics accounted for 30% to 48% of the learning projects (Cross, 1981). Three-quarters of the learning projects undertaken by adults were self-directed, that is, the adult learner took primary responsibility for planning and conducting the learning project.

Continuous learning is essential for maintaining competence among health care professionals. Nurses, the specific subjects of interest in this study, cannot meet all their learning needs without self-directed learning (Clark, 1979). The importance of fostering self-directed and self-motivated learning is found among the goals of most undergraduate nursing programs. Nurses are particularly active self-directed learners, spending considerably more time in these

efforts compared to more formal offerings such as courses, conferences, and workshops (Moran, 1976). Because self-directed learning projects tend to be practical and immediately applicable, nurses regard their learning as very relevant. However, much of the self-directed learning in which nurses engage is not immediately obvious as there is little provision for this type of learning in approval and credit mechanisms (Flaherty, 1979).

Studies have found that most self-directed learners utilize considerable assistance in conducting their learning projects (Tough, 1979a). While the traditional focus of adult educators has been the delivery of programs to meet the learning needs of target groups, assisting and supporting individuals in conducting their own learning projects is considered to be a legitimate role of the educator and the educational institution (Hiemstra, 1980). To this end, knowledge of the way in which adults conduct self-directed learning projects and what kind of help facilitates these efforts would be useful.

Most of the research on self-directed learning examines the prevalence and patterns of the projects and reasons for engaging in self-directed learning. Tough (1979a) looked at the planning steps and assistance required by self-directed learners. However, there is little research available regarding the processes and factors involved in planning and conducting a self-directed learning project. More in-depth study of how learning takes place outside of formal settings

is necessary for the facilitation of learning and for planning programs (Cross, 1981).

The focus of this study is the exploration of the processes and factors involved in the conducting of one successful, job-related, self-directed learning project by each of six nurses. These individuals were selected because they were perceived by their colleagues to be effective self-directed learners.

The method used for data collection was the open-ended interview. The main roles of the interviewer were to select, with the subject, the project to be examined and to assist the subject in recalling details as completely as possible. The open-ended interview, using prompt sheets to recall learning projects, was used by Tough (1979a) to examine aspects of learning projects.

The constant comparative method, part of the grounded theory approach (Glaser and Strauss, 1967), was employed for data analysis. The researcher generated categories and their properties from the data and developed a model or conceptual construct of the self-directed learning project. This conceptual construct can serve to focus future research and to assist self-directed learners.

This study does not address the issue of the relative effectiveness or efficiency of various activities and patterns of self-directed learning, nor does it purport to convey the possible range of behaviors associated with the components of the model developed. The study is exploratory

and offers a beginning conceptualization of the processes, activities, decisions, and influencing factors involved in the self-directed learning projects of the participating nurses.

Purposes of the Study

The purposes of this study were

1. To examine the processes and factors involved in planning and conducting successful self-directed learning projects undertaken by nurses who were perceived as effective self-directed learners, and
2. To develop a conceptual structure of the self-directed learning project to provide focus for future research and guidance for facilitating self-directed learning projects.

Definitions

Learning project - a series of related learning episodes adding up to at least eight hours. The main focus of each episode is to gain and retain certain specific knowledge or skills. There must be intent to retain knowledge for at least two days.

Learning episode - a period of time devoted to a cluster of similar or related activities which are not interrupted much by other activities.

Self-directed learning project - a learning project for which the learner himself assumes the primary responsibility for planning controlling and supervising the entire project.

Limitations

The qualitative approach and small number of subjects impose certain limitations:

1. The use of a small homogeneous group of subjects; that is, six nurses employed in one institution, perceived as effective self-directed learners, describing successful learning projects of similar type, does not provide a wide ranging account of planning and learning activities or significant factors influencing learning projects. Thus, description of categories and their properties is not exhaustive. The model developed by the researcher is an initial formulation and caution is necessary when considering wider application of specific findings.

2. The open-ended interview method introduces researcher bias in the types of probes used.

3. Researcher bias can be implicit in the wording of category description and choice of examples.

4. Retrospective reporting by the subjects introduces the problem of inaccurate recall.

CHAPTER TWO

REVIEW OF THE LITERATURE

Adult Education

The traditional concerns of adult education have been the delivery of programs to meet the learning needs of various target populations or groups, and the application of knowledge from various disciplines such as psychology and sociology to adult learning. Kidd (1959), and later Knox (1978), wrote books which are seminal works in the application of knowledge in growth and development, personality, group behavior, and so on to adult learning. The humanist approach focused more attention on the individual's self-directedness and striving toward, for example, self-actualization, as described by Maslow (1970). Some of the principles of adult learning, as stated by Rogers (1969), also focused on individuals as more than passive consumers of education. Along with several other conditions for significant learning, Rogers included: 1. perception of relevance of content, 2. responsible participation in the learning process, 3. self-initiated learning which involves the whole person, and 4. self-evaluation and self-criticism. As support for the development of a more self-directed approach to adult learning, which he calls andragogy, Knowles (1970)

pointed out the differences between child and adult learners in these assumptions. As a person matures:

> 1. his self-concept moves from one of being a dependent personality toward one of being a self-directed human being;
>
> 2. he accumulates a growing reservoir of experience that becomes an increasing resource for learning;
>
> 3. his readiness to learn becomes oriented increasingly to the developmental tasks of his social roles;
>
> 4. his time perspective changes from one of postponed application of knowledge to immediate application. (p. 38)

Experience, purposefulness, and immediate application were seen as assets of adult learners by Shute (1968). Gross (1980) reiterated these points in his encouragement of adults toward self-directed learning and added this advice: no one can learn for you and there is no one way to learn (p.17).

These assumptions about learning in adults support the value of self-directed learning. Critics of self-directed learning are most concerned when children are involved, where lack of knowledge and experience is cited as a major hindrance to setting goals and selecting content (Hamm, 1962). In applying this criticism to adults and children, one must remember that self-directed learning does not take place in isolation and varying degrees of help are used.

Study and research in self-directed learning has been acknowledged as a legitimate endeavor in adult education (Brookfield, 1981; Boyd and App, 1980).

Professional adult educators have gone further by recommending that traditional institutions undergo changes to accommodate, adjust, or determine their role in supporting self-directed learning and that agencies need to provide time, facilities, resources, and recognition for self-directed learning (Hiemstra, 1980).

Prevalence of Learning Projects Among Adults

In almost all of the surveys of adult learning projects, researchers have used definitions of a learning project based on Tough's definition:

> "...a series of related episodes adding up to at least seven hours. In each episode, more than half of the person's total motivation is to gain and retain certain fairly clear knowledge and skill or to produce some lasting change in himself" (Tough, 1979a).

Tough included all kinds of learning, for example, knowledge, beliefs, awareness, physical and perceptual skill, insight, and confidence. There must be an intent to retain the knowledge for at least two days (Tough, 1979a). Tough further defined a learning episode as

> "...a period of time devoted to a cluster or sequence of similar or related activities which are not interrupted much by other activities. Each episode has a definite beginning and ending in time" (Tough, 1979a).

Again, the major motivation must be to learn something so that instances of incidental learning in situations where learning was not the major focus, are not included as part of learning projects. In a *self-directed* learning project,

the learner himself, rather than any professional teacher or non-human organizer, e.g. programmed instruction, assumes the primary responsibility for planning, controlling, and supervising the entire project (Tough, 1967).

The method used in surveys of adult learning projects has been primarily the in-depth interview. It was noted that adults sometimes don't identify their day to day efforts to acquire knowledge and skill as learning projects. Also, adults tended to deprecate their own self-directed learning activities, especially as compared to more formal types of learning (Tough, 1979a). Subjects needed to be prompted and encouraged to relate the nature of their own learning. When this method was used, the results were impressive:

> How many persons conduct at least one major learning effort during the year before the interview? The answer is probably 90 percent though the range from one study to another is from 70 to 100 percent. (Tough, 1978)

In a national survey conducted in the United States, Penland (1977) found that 79% of adults conducted at least one learning project in the year prior to the interview. The subjects of those learning efforts include topics related to home, family, hobbies, recreation, career, vocation, and religion. Career or work-related topics were the subjects of the largest proportion of learning projects: 30 - 48 % (Tough, 1978; and Cross, 1981). Hiemstra (1980) included a list of research projects which confirmed these general findings and demonstrated the pervasiveness of self-

directed learning in adults. Based on the general research, Cross concluded that approximately three-fourths of the learning projects of adults are completely self-directed, 15% involve group learning, 10% are one-to-one learning situations, and 3% utilize completely pre-programmed non-human sources like programmed instruction, tapes, and television (Cross, 1981). She found also that the mean number of self-directed projects in one year was 5, with an average of 100 hours spent on each (Cross, 1981). Self-directed learning is somewhat less socio-economically based than is participation in formal settings. Sisco (1982) studied poorly educated, low income, rural residents of Vermont and concluded that they were active self-directed learners. The quality and type of learning project may show certain socio-economic and education level biases, however. There is a considerable range in the reports of adult learning projects depending partially on the depth of interviewing. For example, Tough (1967) found that 98 percent of his 66 subjects had conducted at least one project in the previous year and extensive probing revealed a mean of 8 projects, with a mean total of 700 to 800 hours involved in that year. The range was 0 to 2509 hours.

Studies of particular occupational groups have revealed active self-directed learning. Allerton's (1975) subjects were parish ministers who conducted an average of 9.6 self-directed learning projects averaging 52.6 hours per project. Sixty-two percent of the projects were career related. A

sample of 50 administrators conducted a mean of 4.6 projects in a year, 84% of which were job related and 70% of which were self-directed (Benson, 1975). McCatty (1975) reported that in her sample of 54 professional men, the mean number of learning projects was 11.1 and mean hours spent per year was 1244. Over 50% of projects were work oriented, and 76% were self-planned. There is ample evidence, then, of the pervasiveness of adult learning projects, particularly self-directed projects oriented toward job or career.

Self-Directed Learning in Nursing

The focus of this study is the career or job related self-directed learning undertaken by six members of the nursing profession. Several factors combine to demand continuing education in the professions. The "knowledge" explosion and public concerns regarding professional obsolescence demand that new techniques and findings be continually integrated into practice. This means that the professional's education should never end (Rockhill, 1983). Continuing education is certainly valued in nursing, and educational institutions are responding, to some extent, to student's concerns regarding flexibility and individuation in learning for development of competence and career mobility (Lenburg, 1975). Lenburg describes trends toward part-time study credit by examination use of instructional television and so on (Lenburg, 1975).

These efforts notwithstanding, "without self-directed

learning, nurses will never be able to keep up adequately with their learning needs" (Clarke, 1979). Advocacy of self-directed learning in nursing is certainly not a recent development. Florence Nightingale stated "I do not pretend to teach her how. I ask her to teach herself and for this purpose, I venture to give her hints" (Lenurg, 1975).

Although self-directed learning in nursing is advocated as a method for responding to individual needs and competencies (Del Bueno, 1980), credit and approval mechanisms do not take into account self-planned learning (Lussier, 1979). As well, "many nurses have not been prepared for self-directed learning by their professional education" (Clarke, 1979). Tough (1980) and Houle (1980) saw value in learning to learn efficiently and effectively in a self-directed way during basic professional education, as this is the primary method used for career-long learning.

Nurses are engaged in self-directed learning projects like most other adults. Moran (1976) studied learning efforts in a sample of 30 staff nurses. She found these nurses to be very active learners with a mean of 1217 hours in one year spent on learning projects of all kinds. They ranked between the two most active groups in Tough's findings: professors with 1491 hours and politicians with 1189 hours. Of the learning projects devoted to career related topics (40% of time spent), a mean of 496 hours was spent in self-directed learning, while a mean of 22 hours was spent engaged in staff-development offerings. Although the sample

was small in this study, the results are generally consistent with previous studies cited, and give an indication of the amount of self-directed learning engaged in by nurses.

Aspects of Self-Directed Learning Projects

Following is a discussion of findings related to various aspects of the learner's activities and decisions in planning and conducting self-directed learning projects.

A. Motivation

Houle (1963) conducted in-depth interviews in an intensive study of twenty-two adults who were perceived as very active learners. They all valued education, had specific goals, and enjoyed the process of learning. Houle categorized three types of learners in terms of their primary motivational orientation toward learning: goal oriented, activity oriented, and learning oriented. Boshier (1971) developed the Education Participation Scale based on these findings and further isolated factors affecting participation in education, which he termed growth motivated and deficiency motivated. Growth motivated factors relate to the individual's striving for betterment while defiency motivated related to a perceived lack in performance or knowledge. Boshier (1973) further developed a model of participation expressing the interaction between internal psychological and external environmental factors. It is to be expected, then, that individual reasons for engaging in

learning would be many and varied as Cross (1981) stated. She pointed out that life transitions, especially related to job demands or change, frequently precipitate involvement in learning and that most learning efforts tend to be practical and immediately applicable. Tough also reported that adults learn primarily for immediate application in order to perform more effectively and/or efficiently, thus experiencing pleasure during application and raised self-esteem (Tough, 1979 and 1980). Adults also learn in order to impart knowledge or skill and because they enjoy learning the content itself (Tough, 1979b). Emphasis on learning for immediate practical application is also expected in view of the assumptions about adult learners discussed previously.

B. Choice of Self as Planner

As noted previously, about three-quarters of the adults' identified learning projects were self-directed, that is , the learner assumed the primary responsibility for planning, controlling, and supervising the entire project (Tough, 1967). At some point, then, the learner decided to be the planner for the project. In Tough's study, subjects gave several reasons for choosing self as the planner. These reasons can be summarized as follows:

> Learning would be more efficient.
>
> The resources were easily available and the learner was skilled in their use.
>
> The logistic difficulties in using another planner such as time, distance, or cost were circumvented.

> The learning methods and activities could be individualized to suit the learner's preferred style and beliefs.
>
> The content could be chosen to apply to a specific problem.
>
> The learner felt a certain pride and self-reliance in planning his own learning. (Tough, 1979a)

These reasons for choosing self as planner have appeared in other studies such as that conducted by McCatty (1975). The professional men in her study stated the following reasons in order of frequency:

1. Individualization of subject matter to apply to a particular problem at hand or to suit own interests.
2. Physical availability of resources and economy.
3. Feeling of independence and self-reliance.
4. Expertise in subject area.
5. Flexibility of time.

Most subjects in each of these studies listed more than one reason for choosing self as planner.

C. Planning

Tough (1979b) reported that in most self-directed learning projects, adults planned as they progressed, often taking a rather meandering path. On this basis, he has critiqued the use of learning contracts as developed by Knowles (1970) as students tend to feel 'locked in' by preplanning most of their learning activities. Tough (1979a) has developed a list of 13 preparatory steps (Figure 1) that the learner sometimes takes in a self-planned learning pro-

Figure 1

Possible Preparatory Steps
Taken by the Self-Planner

1. Deciding what detailed knowledge and skill to learn.
2. Deciding the specific activities, methods, resources, or equipment for learning.
3. Deciding where to learn.
4. Setting specific deadlines or intermediate targets.
5. Deciding when to begin a learning episode.
6. Deciding the pace at which to proceed during a learning episode.
7. Estimating the current level of his knowledge and skill, or his progress in gaining the desired knowledge and skill.
8. Detecting any factor that has been blocking or hindering his learning, or discovering inefficient aspects of the current procedures.
9. Obtaining the desired resources or equipment, or reaching the desired place or resource.
10. Preparing or adapting a room (or certain resources, furniture, or equipment) for learning, or arranging certain other physical conditions in preparation learning.
11. Saving or obtaining the money necessary for the use of certain human or nonhuman resources - perhaps for buying a book, renting equipment, or paying for lessons.
12. Finding time for the learning.
13. Taking certain steps to increase the motivation for certain learning episodes.

* Taken from Tough, A., The Adults Learning Projects, Toronto: Ontario Institute for Studies in Education, 1979 (a): p. 95

ject. These steps were based on a list of tasks tested in his 1967 study and revised and further modified based on subsequent experience. All learners do not perform all activities listed. Tough (1979) also found that almost all learners obtain help from four or five people as planning or content resources, and that most help was needed in choosing what and how to learn (Tough, 1980). In studying preparatory steps in the self-directed learning projects, of 19 practicing pharmacists, Johns (1974) found that the following steps were most frequently engaged in:

a) deciding on specific activities, methods, resources, or equipment for learning;

b) deciding what detailed knowledge and skill to learn; and

c) finding time for learning.

Benson (1975) reported that the projects in his study were organized similarly to conventional approaches to planning programs. However, Georgi (1979) reported that there seemed to be no one paradigm for self-learning.

D. Resources and Learning Activities

In most of the studies previously cited, print was the primary resource used (Tough, 1979a; Johns, 1974; and Benson, 1979). McCatty (1975) added that discussion with one or several individuals was another important learning activity, followed by doing and observing.

E. Need for Assistance

According to Morris (Tough, 1978), the most common difficulties or problems encountered in self-directed learning projects were

1. Knowing how to start - setting objectives
2. Finding time to conduct learning projects
3. Knowing whether or not they were progressing or had accomplished what they had set out to do

Tough (1967) reported that some assistance was required in all tasks by at least one subject and that, over all, a large amount of human assistance was required. Benson (1974) also reported that over half of his subjects needed help in evaluation.

Program Planning and Instructional Design

Because in self-directed learning projects the learner performs many of the tasks a teacher or program planner does for the student in more formal settings, components of planning and teaching should appear in the self-directed learning project. Thus, the instructional design literature gives some guidance which aids in identifying these components in self-directed learning.

Glaser (1976) proposed the following components of a psychology of instruction:

1. Analysis of competent performance including task analysis related to formulation of objectives.
2. Description of initial state including competencies in content and abilities to learn.

3. Conditions that foster acquisition such as knowledge, structure, and learning to learn abilities.
4. Assessment of the effects of instructional implementation.

Gagné (1965) approached these categories in a more prescriptive way as he listed components of planning for suitable conditions for learning:

1. Defining objectives for learning,
2. Determining learning structure - sequence and organizing,
3. Choosing conditions for instruction - can be pre-designed or designed as the learning progresses, and
4. Procedures for assessment.

Various other authors have listed components or steps in program planning with varying degrees of specificity, depending on their purpose (Knowles, 1970; Houle, 1973; Dick and Carey, 1978; and Lens, 1982). (See Appendix II) Gross (1980) implied some of these components when he suggested the following questions the self-directed learner needs to attend to when planning a learning project:

> What exactly do I want to learn, understand, know about, become, be able to do?
>
> 1. How and where can this best be learned? What resources would be useful?
> 2. When is the best time to learn it and what would be a desirable schedule and deadline?
> 3. Who could help?
> 4. How much is it worth to me? How much will it cost - in time, energy, and money - through various means?

5. How will I know I've achieved the goal, and what documentation or product would be useful to have?

Recommendations for Research

Brookfield (1981) acknowledged that research into self-directed learning is a legitimate concern and Cross (1981) further pointed out that one role of educators is to facilitate self-directed learning. Further, the research confirms that adults want additional help and competence with planning and guiding their learning (Delker, 1979). Some research has accumulated on particular aspects of self-directed learning projects, but there is a need for more effort directed toward understanding the individual learner's decision-making process, that is, how learning is planned and guided (Tough, 1980). Rubenson (1982) contended that adult education research has emphasized development of empirical methods at the expense of developing theory and conceptualization. He cited the grounded theory approach of Glaser and Strauss (1967) as a valuable contribution to the solutions of this problem as well as fertile ground for interdisciplinary approaches. Other authors have noted the lack of theory in adult education (Cross, 1981), however, use of grounded theory and interpretive literature has gained popularity in reported research in adult education (Long, 1983). There appears to be a need for scholars like ethologists to study problems of the field to understand educational events

(Atkins, 1973). Further, uncovering people's definitions and rules covering everyday learning should yield more valid constructs (Rockhill, 1983).

> "Whether one wants to know how to facilitate learning or how to present information to adults, more in-depth study of how learning actually takes place in everyday settings is a necessity, one that should receive first priority in the 1980's." (Cross, 1981)

The focus of this study and its methodology seem appropriate, then, to the current state of research in self-directed learning.

CHAPTER THREE

METHODOLOGY

Introduction

The focus of this study is an exploration of the process whereby nurses plan and conduct a self-directed learning project. The intent is to describe various dimensions and variables affecting this process by examining the descriptions given by six nurses of their own learning projects. Various aspects of self-directed learning have been studied, but little research is available regarding the actual process involved in such learning. Therefore this study is exploratory in nature and is well suited to a qualitative approach utilizing a naturalistic paradigm. Because the naturalistic paradigm involves advantages and disadvantages which are different than those of the scientific paradigm. A discussion of the rationale for using the naturalistic paradigm follows.

The basic assumptions of the naturalistic paradigm as described by Guba and Lincoln (1981) demonstrate the applicability of this method to the exploration of an individual's learning process. These assumptions will be described and contrasted with the assumptions of the scientific paradigm.

1. The Nature of Reality

The first important assumption pertains to the nature of reality. The scientific paradigm views the world as a series of discrete entities or stable processes with relationships expressable as causal hypotheses. Other variables are dealt with as confounding variables to be controlled or eliminated. When addressing this assumption, the naturalistic paradigm embraces an opposite view, that is, there exist multiple realities and multiple truths which form patterns (Guba and Lincoln, 1981, p. 58). Variables are not operationalized but are formulated to be investigated, in all their complexity in the context in which they appear. (Bogdan and Biklen, 1982, p. 2). The inquirer is "...concerned as well with understanding behavior from the subject's own frame of reference. External causes are of secondary importance" (Bogdan and Biklen, 1982, p. 2.). This viewpoint has some theoretical roots in the phenomenological approach which "... attempts to understand the meaning of events and interactions to ordinary people in particular situations" (Bogdan and Biklen, 1982, p.30). The underlying assumption is that the meaning of our experiences constitutes reality, but there is no denial that there is a reality 'out there' that stands over and against humans.

This assumption about reality is also present in the view of human society as symbolic interaction which maintains that real events are important in terms of how they are interpreted and that human "... response is not made

directly to the actions of one another but instead is based on the meaning which they attach to some actions" (Blumer, 1962, p.97). Mead goes on to develop the implications of this seemingly simple statement, when he declares that "the human being can be the object of his own actions" (Blumer, 1962, p.97). The importance of this statement is twofold. First, when the individual indicates something to himself (notices something) meaning is conferred on that stimulus by the individual and becomes a product of the disposition to act, rather than an antecedent stimulus with intrinsic character which acts on the individual. Second is the implication that the actions of a person are constructed or built up, and not just a release or reaction (Blumer, 1962, p.98). Thus the meanings an individual attributes to his world are important not only in terms of his inner world, but also in terms of his actions.

The phenomenological approach is also evident in many anthropological studies of education. Such definitions of culture as "the acquired knowledge people use to interpret experience and generate behavior" (Spradley, 1980 p.6), reveal this approach. Certainly ethnography is a good example of a qualitative approach used to describe culture. Spradley's definition of culture also has much in common with symbolic interaction.

2. Inquirer-Subject Relationship

A second assumption of the naturalistic approach pertains to the inquirer-subject relationship. In the scientific approach, techniques are used to maintain distance between inquirer and subject to minimize the effect of inquirer interference and bias. In the naturalistic paradigm, the inquirer is often an instrument in the collection and analysis of data. Questions asked by any investigator, even if the instrument used puts the inquirer 'at arm's length' from the subject, are subject to bias. "Qualitative researchers try to acknowledge and take into account their own biases as a method of dealing with them" (Bogden and Biklen, 1982, p. 43). Of course, the researcher is never entirely successful in dealing with the problems of using himself as the instrument of data collection such as in an open ended interview where effects "ranging from fatigue to selective perception occasioned by biases or prejudices" (Guba and Lincoln, 1981, p.60) are obvious. On the positive side, however, the researcher need not begin from 'ground zero' on each successive interview. "He will have learned something from each [interview] that can be verified or perhaps even expanded in subsequent interviews" (Guba and Lincoln, 1981, p.61).

3. Nature of Truth

A third set of assumptions relating to the nature of truth is also important. Because the aim of science is most

frequently the production of generalizations, that is, statements of 'enduring truth value' that are essentially unchanged from context to context (Guba and Lincoln, 1981, p.58), the focus of the scientific paradigm tends to be on similarities of examples. On the other hand, the naturalistic inquirer favors descriptive statements and "working hypotheses" (Chronbach, 1975). Differences and similarities in examples are of concern as well as detailed information about context necessary to determine if there is a basis for transfer. The emphasis in naturalistic enquiry is on understanding of particular events. Chronbach suggests that, particularly in the behavioral sciences, generalizations decay over time and "...that, after a time, every generalization is less science than it is history" (Chronbach, 1975). Generalizations are assertions that are context free, thus even when hedged with caution, they are difficult to maintain in the behavioral sciences where "exception to the behavioral laws abound" (Guba and Lincoln, 1981, p.62). One method used in naturalistic inquiry to deal with generalizability is the grounded theory approach of Glaser and Strauss (1967). Categories, their properties and relationships are built up from qualitative data. By collecting data in varying contexts, similarities and differences are revealed which further refine and complete conceptual categories and relationships and important variables.

The assumption regarding the nature of reality, inquirer-subject relationship and the nature of 'truth' statements

just described have implications for qualitiative research. These implications lie in the areas of preferred technique, source of theory and quality criterion which will be discussed as the methodology of this study is described.

Subject Selection

The subjects for this study were six nurses in various positions of employment practicing nursing at a 500 bed active treatment hospital in a city of 50,000. A nursing administrator, whose responsibilities include educational programs in the nursing department was approached by the researcher to furnish a list of several nurses working at the hospital who she and her colleagues perceived as active successful self-directed learners. These individuals were approached by the researcher and subsequently interviewed. Seven interviews were completed, but one was discarded as the learning project described did not meet the criteria for a self-directed learning project (see p. 30).

Nurses who were perceived as successful self-directed learners were chosen so that the focus of the interview would be the successful completion of all phases of the self-directed learning project. When projects are judged as unsuccessful by individuals, they are more concerned with the frustrations and difficulties encountered.

Data Collection

The method of data collection used an open-ended interview. The interviewer used probes to assist the subject in recalling and describing various aspects of the learning project. The interviews were conducted by the researcher in various settings: four were in offices at the hospital and two were in the homes of the subjects. The segment of the interview dealing with the subjects' description of planning and conducting the learning project was transcribed and taped for analysis. The length of the interviews varied from 1 1/2 to 3 hours.

The open-ended interview is a common technique of data collection associated with the qualitative method. In keeping with the aim of capturing the subject's own words and the meaning individuals attribute to their own situations, interview guides enable open-ended responses and flexibility which allow for the introduction of unanticipated data. The semi-structured interview such as used in this study is valuable in gathering comparable data across subjects but one does lose the opportunity to understand how the subjects themselves structure the topic at hand (Bogdan and Biklen, p.136). The semi-structured interview then, is something of a compromise between the two aims of collecting comparable data and capturing individual meaning, and is very dependent on the skill of the interviewer in avoiding 'yes-no' questions, and seeking clarification based on intent listening to assist the subject in expressing his own account of the

situation. With these considerations in mind, the interview format was piloted with two nurses who were acquaintances of the researcher and minor alterations to probes and prompt sheets were made following the pilot test.

All interviews were tape-recorded. All of the subjects had used tape recorders during interviews as students or in their work and all seemed quite comfortable with the presence of the tape recorder. The recordings were transcribed by the interviewer to achieve accuracy in phrasing and punctuation (Bogdan and Biklen, p.96).

A. Interview Format

The purpose of the interview was first explained to the subject. The interview itself had four parts. The first part of the interview was designed to collect descriptive data about the subjects, such as age, level of education, type of position, previous nursing experience, and family situation. The second part of the interview was designed to assist the subjects in recalling projects related to their job or career that occurred during the 12 months prior to the interview. Prompt sheets suggesting situations which might evoke learning attempts, possible content areas, and resources were used to assist the subject. (See Appendix 1, Interview Sheets A and B) The use of prompt sheets to assist in the recall of learning projects was taken from the Interview Schedule For Studying Some Basic Characteristics of Learning Projects (Tough, 1979). The list of learning

projects need not be exhaustive, as the purpose of this part of the interview is not to compile a list of projects, but to furnish some basis for choosing one project for exploration.

The purpose of the third part of the interview was to select with the subject one learning project to examine in greater depth. Interview Sheet C (Appendix 1) was used to examine each project to determine if they met the criteria for a self-directed learning project. These criteria taken from Tough's (1967) definition of a self-directed learning project, were

1. The project was conducted in more than one learning episode.

2. More than 8 hours were spent planning and learning.

3. Learning some particular knowledge or skill was the primary focus.

4. The learner had assumed the primary responsibility for planning, controlling, and supervising the entire project.

5. The learner had a strong desire to achieve his learning goal, that is, it was perceived by the learner as important.

6. The learner viewed the project as successful.

The learning project described by each subject which most closely met these predetermined criteria was chosen. Also, the subject's wishes regarding preference of project to be discussed were considered. The above data were recor-

ded in written form.

The fourth part of the interview was tape recorded with the subject's permission. The subject was asked to describe, in depth, how the learning project was planned and conducted. The interviewer primarily assisted the subject to recall specific details. Probes (Interview Sheet D, Appendix 1) were used to help the subject to recall all aspects of the project. The list of probes was developed from examination of Tough's list of preparatory steps in planning learning projects (See Figure 1, p.16), Gross's suggestions for developing a learning project plan (p. 76), and Gagné and Brigg's components of program planning (1974). As noted in Chapter Two, program planning and instructional design literature suggest components of planning and conducting learning which would probably appear in some form in a self-directed learning project.

Method of Data Analysis

The method used to analyze the interview data was the constant comparative method of qualitative analysis , part of the grounded theory approach described by Glaser and Straus (1967). This approach is concerned with discovery of theory from data.

> The constant comparative method is concerned with generating and plausibly suggesting (but not provisionally testing) many categories, properties and hyphotheses about general problems. (Glaser and Strauss, 1967, p.104).

The conceptual categories are generated from the data, and

examples from the data are used to illustrate the concept. The subjects of this study comprised a small, relatively homogeneous group. To fully use the comparative method, data on other individuals in different contexts is necessary until theoretical saturation is reached. "Saturation means that no additional data are being found whereby the [sociologist] can develop properties of the categories" (Glaser and Straus, 1967, p.61). A description of the constant comparative method of analysis as used in this study follows.

The researcher coded each incident in the data into categories as the categories emerged or as data were encountered that fitted into existing categories. This was done by simply making notes in the margin of the transcribed interviews.

> To this procedure we add the basic, defining rule for the constant comparative method: while coding an incident for a category, compare it with the previous incidents in the same and different groups coded in the same category (Glaser and Strauss, 1967, p. 106).

As each interview was analyzed, the researcher returned to previously coded interviews to verify or alter categories. As the coding progressed, various properties and dimensions of the categories emerged.

"At this point, the second rule of the constant comparative method is: stop coding and record a memo on your ideas" (Glaser and Strauss, 1967, p. 107). The researcher also discussed the emerging constructs with various col-

leagues to aid in clarifying her own thinking.

The next step was to integrate the characteristics and their properties, followed by the construction of a model which begins to describe inter-relationships among categories. This method of analysis results in constructs which are sensitive to the data, and regards theory discovery as an ongoing process.

Quality Criterion

"For naturalistic inquiry as for scientific, meeting tests of rigor is a requisite for establishing trust in the outcomes of the inquiry" (Guba and Lincoln, p.103). The naturalistic analogues of the four major criteria for meeting tests of rigor as described by Guba and Lincoln were used. These four basic concerns with their scientific terms are

A. Truth value - internal validity
B. Applicability - external validity
(generalizing ability)
C. Consistency - reliability
D. Neutrality - objectivity

A. Truth Value

Because naturalistic inquiry deals with multiple realities which exist in the minds of people, the usual criteria of fit between the data and the phenomena or reality being

studied is not entirely applicable. The naturalistic inquirer is more concerned that the sources (subjects) regard the findings and interpretations as credible. In this study, presence in the field and involvement of the researcher with subjects are not major distortions of data as the subjects reported past events which the inquirer was not a party and the data was collected during the course of only one interview. One source of distortion of data is the bias of the inquirer as revealed in the probes used during the interview. The use of these probes tended to impose some structure on the experiences of the subjects and may account for the nature of some categories generated from the data. Distortion due to the recording of data was minimal as a tape recorder was used to obtain a verbatim transcript for analysis. However, non-verbal communication, which shades the meaning of verbal messages, was not recorded unless quite exaggerated, for example, prolonged pauses. Therefore some data was lost by using audio tapes. Because of the nature of the inquiry, there exist no other sources of data for triangulation, that is, comparison of data secured using other methods. Although awareness of possible distortions and careful attention to data collection methods increase the probability of credible data and interpretation,"...the determination of credibility can be accomplished only by taking data and interpretations to the sources from which they were drawn and asking directly whether they believe - find plausible - the results" (Guba and Lincoln, 1981,

p.110). In this study, the analysis of the data was read by two of the subjects. They were told how to identify their quoted statements and asked to check on the plausibility of the interpretations. Both subjects found the interpretations by the researcher to be reasonable. Obviously, considerations other than the credibility of data and interpretations may influence the response of subjects when asked to comment on data and its analysis. In this case, issues of conflict of values, self-image and self-interest were minimized because the learning project was conducted by the subjects for themselves and the study does not attempt to evaluate or judge the subjects or their projects.

B. Applicability

As stated earlier, a purist view of generalizability as a context free proposition is not particularly useful in the behavioral sciences, especially in naturalistic inquiry which is very much concerned with context. Guba and Lincoln (1981) suggest that the idea of "fittingness" may be more useful in considering generalizability in naturalistic inquiry "... it seems useful to think not in terms of generalizations but in terms of working hypotheses that fit more or less well into a context other than the one in which they were derived" (p.118). The characteristics of the setting and subjects are particularly important in making judgments regarding application of hypotheses in another context. However, as House notes, "on a procedural level, a func-

tional al analysis of major environmental events can be quite difficult" (Guba and Lincoln, 1981, p.22). Use of the grounded theory approach over several subjects in different settings not only increases applicability, but also critical differences in contexts can be identified. In this study, a small relatively homogeneous group working in one hospital, all members of one profession comprised the group of subjects. Also, the learning projects described dealt with learning concepts and principles rather than manual skills or procedures. Five of the six subjects have some teaching experience and/or have taken education related formal courses. Thus, they were not totally naive in terms of relating and structuring their experiences. The model developed by the researcher from the data and ranges of behaviors reported in Chapter Four provide sources of hypotheses for future research but the fit in terms of context would have to be examined closely for wider application.

C. Consistency

"The issue of replicability is frequently invoked by critics of naturalistic inquiry" (Guba and Lincoln, 1981, p.120). The assumption regarding multiple realities makes replicability a non-issue for many naturalistic inquirers, and "if the (evaluators) place emphasis on shoring up validity, reliability will follow" (Guba and Lincoln, 1981, p. 120). Nevertheless, there are some techniques available to demonstrate replicability. Overlap methods of inquiry tech-

niques and stepwise replication at several stages during the study were not attempted in this study. The audit has been suggested as another technique available to the inquirer. The audit establishes the reasonableness of categories given the data. While it cannot be expected that sets of categories developed by two independent judges from the same basic data will coincide, it was argued that a second judge should be able to verify that the categories derived by the first judge make sense in view of the data pool from which the first judge worked and that data have been appropriately arranged into the developed category system (Guba and Lincoln, 1981, p.122). Thus auditability seems a reasonable concept to address the issue of consistency. No formal audit of this study was undertaken. However one committee member examined some of the researcher's data and concluded that a general teaching model appeared to emerge from the data. Further, the types of categories independently formulated by the committee member were consistent with those developed by the researcher. The presentation of data does contain examples from the data to support the categories described which gives the reader an opportunity to judge for himself as Duigan (1981) has indicated:

> Inter-rater reliability tests are generally not possible for the lone obsever working in the field. It is incumbent upon him, therefore, to explicate for the reader his method and procedures of recording, coding, analysis so that the reader can judge for himself the appropriateness of procedures or categories employed (p.293).

D. Neutrality

As mentioned previously, the issue of neutrality, called objectivity in the scientific paradigm, has been a significant problem regarding naturalistic inquiry. The major concerns relate to dependence on description of experience by individuals and the lack of *a priori* controls regarding data collection and analysis. Scriven (1972) suggests that what one individual experiences is not necessarily unreliable and that quantitative data is often an enumeration of many individual experiences which are open to the same types of criticism. As to the concern regarding *a priori* controls, choosing of type of data desired and instruments for collection and analysis are themselves, to some extent, based on the investigator's bias and interests, and instruments often contain particular bias, for example, cultural bias in so-called objective tests. These methods, then, furnish no guarantee of neutrality. Scientific and naturalistic inquiry into human behavior then are not the polar extremes of objectivity and subjectivity they are sometimes purported to be. Guba and Lincoln (1981, p. 126) suggest that the notion of confirmability may be more useful in considering neutrality. "In that regard, the methods for establishing truth value discussed earlier seem appropriate" (Guba and Lincoln, 1981, p. 126). However, there is another aspect to confirmability "...it shifts the burden of proof from the investigator to the information itself" (Guba and Lincoln, 1981, p. 126.). The possibilities for investigator

lack of objectivity are myriad including unconscious bias and prejudice, gullibility, incompetence, and corruptibility. The investigator can never, by methodology, rid himself of subjectivity. The requirement of confirmability simply means that the data must be reported in such a way that it can be confirmed from other sources. Use of examples from data and careful description of methods are important in this regard. Examples are used extensively in this study to assist the reader in judging interpretations made by the researcher.

In summary then, naturalistic inquirers attempt to "...objectively study the subjective states of their subjects" (Bogdan and Biklan, 1982, p. 42). Further, the investigator's purpose is to add to knowledge, not pass judgments. However, it must be acknowledged that the close involvement of the researcher in data collection and analysis does result in some loss of objectivity. This is compensated for by "continuously emerging insights that naturalistic methods produce" (Guba and Lincoln, 1981, p. 127). The model and category descriptions developed by this researcher reveal insights gained from the data collected and form a basis for further investigation into individual's learning processes.

CHAPTER FOUR

ANALYSIS OF DATA

Description of Subjects and Learning Projects

As described previously, six subjects were interviewed in depth. Figure 2 shows their positions of employment, their formal education, ages, and family status. Figure 3 shows the topic of each learning project described and the approximate number of hours involved This time includes all aspects of the project including planning, not just the actual learning time.

As shown in Figure 3, the topic of the learning projects of subjects D. and P. was Nursing Audit. Although they collaborated in producing the chart audit tool and in giving presentations to staff, each individual conducted her own learning project. D. and P. shared some print resources and utilized each other for formative evaluation to some extent. These activities are discussed further in this Chapter.

FIGURE 2

Summary of Characteristics of Subjects

	Position	Education	Age	Family Status
S.	Clinical Educator	RPN B.Ed	30-35	Single
N.	Clinical Educator	RN B.Sci.N Courses	25-29	Single
T.	Clinical Education Co-ordinator	RN B.Sci.N	35-39	Married 2 Children
P.	Quality Assurance Assistant	RN	20-25	Married
D.	Quality Assurance Assistant	RN	30-35	Married 2 Children
E.	Part-Time Staff Nurse	RN Refresher Course	40-45	Married 4 Children

FIGURE 3

Summary of Topics and Time Involved by Each Subject

Subject	Topic	Hours
S.	Stress Management	170
N.	Developing a Program	50
T.	Program Guidelines	36
P.	Nursing Audit	150
D.	Nursing Audit	175
E.	Diabetic Care	40

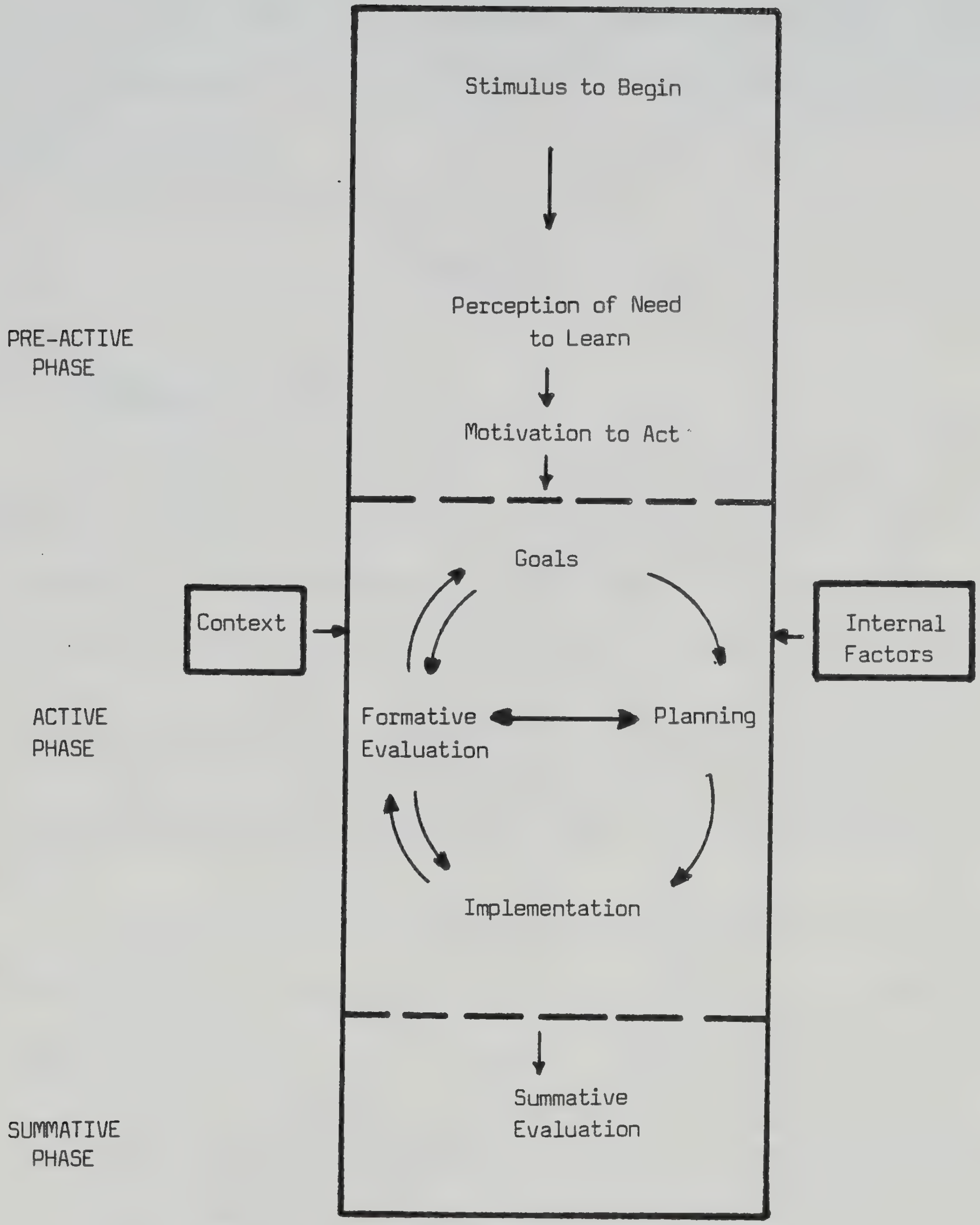
Model of the Self-Directed Learning Project

Constant comparative analysis of the interview data revealed categories which were then integrated to form a model descriptive of the process and factors involved in a self-directed learning project. This model and categories will be presented accompanied by illustrative data from the interviews. The quotations are verbatim from the interviews unless otherwise stated and the symbol ". . ." indicates omission of unrelated comments or lengthy pauses.

As the analysis progressed, it became evident that the major components of most teaching models were present in the descriptions of the subjects' learning projects. These components form the model developed by the researcher diagrammed in Figure 4. As can be seen in Figure 4, the process involved in the self-directed learning project is divided into three phases. The pre-active phase includes those activities and factors which precede involvement in the learning project and are related to impetus to begin the project. The active phase includes goals, planning implementation, and formative evaluation. These activities do not occur in a linear fashion usually. They appear in varying configurations among the subjects and each component is influenced by and influences the other components. All four components may appear repeatedly during the course of the learning project and involve varying activities. The summative phase includes the final product and retrospective

FIGURE 4

Model of Self-Directed Learning Project



valuing of the learning project. Two other components of the model, context and internal factors, are factors influencing the learning project but not part of the process itself. To explicate the model, each component including sub-categories will be presented with supporting data from the interviews.

Preactive Phase

A. Stimulus to Begin

For all six subjects, the stimulus to begin was the perception of a demand for performance in the working environment. In some cases, the demand arose when the subject assumed a new position as in the case of N:

> It was a priority like when the job was created. The extended management group sat down and decided what the short term priorities would be and the priority was to get together some kind of an orientation program for all levels of staff.

For others, a need for some assistance or direction was identified by other staff, subordinates, or supervisors. S. experienced this type of demand regarding stress management:

> I think firstly it was identified as a need by some staff on our unit. Some of the head nurses had come to me and identified it as a need and some had gone to T., who is my co-ordinator. T. asked me of I would be able to put some kind of program together.

All subjects identified at this stage some future action or product that would satisfy the perceived demand such as a presentation, a program, or a written document.

B. Perception of Need to Learn

Having perceived a demand and formulated some kind of future action, the subjects all indicated that they were aware of a lack of knowledge or skill needed to perform to a standard they desired. The following comments indicate this awareness:

> N: I didn't have a clue . . . I wanted to know how to go about that properly.
>
> P: I realized I needed to learn. I needed a knowledge base from which to work.
>
> E: Pure unknowing and panic . . . It's a critical disease and when you're in trouble, you need to know what you're doing right now.

C. Motivation to Act

Motivation to take action to begin the learning project is certainly related to stimulus to begin and perception of the need to learn. However, there are other factors which contribute to beginning and continuing the learning project. These factors were both external and internal to the individual.

The major external factor was a time limit or target date for action as in the case of T:

> Part of the time span was related to accreditation. Programs wil be looked at and our accreditation is coming up in August and September, probably of this year.

Internal factors included the desire to do a good job and "feel good" about self, desire for esteem from colleagues, interest in the area of study, belief in the use-

fulness of action proposed, and enjoyment of learning. Most subjects seemed quite aware of these factors, particularly E:

> I didn't want to be a fool on the ward and I wanted to know, I really wanted to know 'cause it's interesting and I also wanted to be able to help people. And if you don't know you can't help them and also for my own self-esteem. I wanted to feel great about it. I wanted to be successful. I really wanted to be a good nurse. I wanted to be a better nurse than I was before.

D. Summary

The preactive phase was quite uniform across subjects. The stimulus to begin was some demand for action resulting from a change in job responsibilities or some need identified by others in the work environment. The perception of the need to learn was simply an awareness of a lack of knowledge or skill needed to take the action desired. Motivation to act was more complex, involving external factors like time constraints and internal factors like the desire to feel "good" about oneself and the success of the action demanded.

Active Phase

A. Goals

This component includes decisions about the particular knowledge and skills the subject wished to learn. The setting of goals tended to be an evolving, largely informal process. Most subjects began with vague goals largely based

on the type of product desired. The specificity of goals at the beginning of the project also depended upon previous knowledge in the area to be studied or in related areas. For example, E. started with fairly specific goals in learning about diabetes based on previous knowledge and learning about other disease conditions:

> I needed to know the anatomy and physiology involved. I needed to know the pathology. I needed to know the signs and symptoms and treatment.

These are fairly traditional categories of knowledge related to disease conditions. As E. progressed in her learning, however, she realized that the growing emphasis in nursing on patient teaching and self-care meant that she had to set new learning goals.

Another subject, N., said she had a very vague idea of the product desired and had no idea of what she needed to learn. She began by getting some help in setting goals:

> And I sat down with B., H., and D., and they just sort of sat and brainstormed for about an hour the first time with me, just to find out what I didn't know . . .

Throughout the project, N. set learning goals with the help of B. as she completed each step:

> I don't know if I ever decided what I needed to know except to walk through the program.

Other subjects started by doing some general reading in the subject area to ascertain the dimensions involved. They then made decisions regarding the nature of the product which gave them guidance in formulating goals. S.'s statement illustrates this method:

> Interviewer: You just started with the whole area of stress?
>
> S: Yeh. Just stress management and what the hell is this all about and then try to put something together.
>
> At the beginning I didn't know what it was I was wanting to do . . . By now I had a lot of information . . . How am I going to present this to staff? I'm going to start with a definition. I'm going to start with maladaptive as opposed to adaptive systems. . .
>
> I know that I was going to learn the information to fit into this particular format.

The setting of learning goals as evidenced in these examples was largely influenced by formative evaluation which will be discussed later.

B. Planning

The planning of learning activities includes all preparatory activities which enable the activity of learning. Included are the decisions about learning activities and the preparatory activities a teacher in a traditional classroom setting would undertake for his students. The six subjects in this study, according to the criteria for a self-directed learning project, performed these tasks largely for themselves with help in some instances. The control over learning activities rested with each subject. Planning will be discussed in four categories: choice of self as planner, planning learning activities, securing resources, and management of time and location for learning.

1. Choice of Self as Planner

The choice of self as planner was one of the criteria for a self-directed learning project. Some of the subjects did secure assistance in planning their own learning, but in all cases, decisions regarding resources and activities remained with each subject. The reasons given for choosing to plan the learning project were quite consistent. Most mentioned that they did not have the time to wait for a specific course or conference. Two of the subjects stated that conducting the learning project themselves was an expectation in their new position. All the subjects stated that one of the main reasons they chose themselves as planners was that they wanted to apply the knowledge available to their own particular situation to meet the demands of their position. For example, T. had some previous theoretical background in program development and stated her reasons for choosing to plan the project herself this way:

> I think that if you go to a workshop, there is always the danger that you're given a lot more theory and you still have to go home and figure how you would apply it and I felt that I maybe had enough theory from what I had read . . . and what I had to figure out was why would I apply it here and how would I do that?

Implied in this statement is the perception that the learning would be more efficient in terms of the kind of product desired if planned by self. Some subjects were also aware that there was a sufficient range of printed material in their area of interest, that was accessible to them so they could find the information themselves. Most subjects also

mentioned that planning their own project was more convenient because they could fit their learning activities around their job and family responsibilities.

2. Planning Activities

Planning learning activities includes such tasks as deciding the method of acquisition and sequencing of content. In deciding methods of acquisition, these six subjects were generally not aware of making choices. The method of acquisition depended largely on the nature of resources, which were primarily print, and previous learning experience. The planning of activities also depended on their perception of progress as they learned. That is, they decided what to do next based on their learning to that point and their evolving goals.

There was considerable variation in the sequencing of content. Three subjects skimmed a considerable amount of printed material, decided on an outline which described the particular content they desired, and pursued each topic, keeping the desired product in mind.

N. learned about program development by planning a particular program and learning the concepts and methods she needed at each stage:

> Like this week, we would sit down and say, 'Okay, where are we at? What do you need to know?' And maybe this is the first step. And then I'd go off and do that, and then come back and say, 'Well, I've got all of this now.' And sometimes I would clue in on what you had to do next just by doing that.

Another subject, T., decided early in her project that she could use the organization of the nursing process (assessment, planning, implementation, and evaluation) to structure the content in developing program guidelines.

The sixth subject, E., started by reviewing her old textbooks, then skimmed a more recently produced manual. She then continued to learn about specific areas of diabetes as she encountered patients with particular problems, e.g. a non-insulin dependent diabetic.

All subjects indicated that they were not aware of choosing a particular strategy at the time. Only in retrospect could they see clearly the patterns of their learning activities.

3. Securing Resources

The resources referred to in this section are content resources which include print, other media, and people. Individuals may also be used as process resources, that is, as promoters of the learning process. For five of the six subjects, print was the most used resource. However, the searching and securing of resources was accomplished in a variety of ways.

T. primarily used texts she had in her own library and programs developed in the hospital, so little time was spent securing resources. She also obtained some information from her subordinates in meetings.

D. and P. were given some information by their super-

visor to begin their project. They also searched the hospital library for appropriate journal articles. The librarian assisted them in suggesting, locating, and photocopying some articles. They used the bibliographies of articles to find others. As D. and P. were both working on the same project, they also shared material with each other. Both decided that there was sufficient material within the hospital for their purposes.

E. began with her old textbook. During her refresher course, she received some material and was told of a diabetic manual available at the hospital, which she later obtained. She also secured the printed material given to patients and viewed film loops with patients. Her husband, a physician, was also used as a content resource.

N. depended primarily on people as content resources. She utilized experts in staff development and the head nurse and management group in her area of responsibility. She used some print material that related directly to her specific activity. When the program she was developing was nearing completion, she read articles on program development, she "ran across" in journals.

S. went much further afield in his search for resources. He and the hospital librarian searched for journal articles in the hospital library and found few. He then searched journals in the library of a local physician. While visiting in Calgary and Edmonton, he obtained photocopies of journal articles from the university libraries.

He also approached the local Canadian Mental Health Association as well as a friend in nursing education in Calgary for more material . S. was interested in gathering a large amount of material from which to choose appropriate content. He also ordered and viewed some films, and talked with colleagues in the hospital to obtain additional information.

4. Management of Time and Location for Learning

Decisions regarding use of time and an appropriate environment for learning were largely dependent on job situation, other responsibilities, and deadline for action or product. Choosing a location for learning did not seem to be a major issue for these learners. All but one subject had office space in the hospital which was suitable for study. E., who was working as a part-time staff nurse, learned primarily at home, except when watching film-loops with patients.

There was considerable variation in the use of time. For three subjects, the learning project was a major focus in their new positions. All three felt they had ample time in the job situation to devote to the project. The major constraint was a target date in these cases. N. found she needed to plan specific times for learning:

> I found that without actually blocking out think-time, I was running from one place to the next getting things done, but never having time to plan.

P. experienced a somewhat different problem related to

time management. She had a large unstructured block of time, two to three months:

> Especially in this situation, I needed a timetable. I never was given a timetable and I expected one at the beginning.
>
> Because to me, it seemed to me like, okay, a month is a long time to spend doing the research and doing the reading.

P. did get some help from her supervisors in setting limits and deadlines with D., who was working on the same project. She did acknowledge that some initial learning was necessary in order to make decisions about target dates.

T. experienced more pressure from other job responsibilities. She set aside some time for learning during working hours, but spent time at home writing program development guidelines.

E., the part-time staff nurse, planned her learning time at home in the morning when her children were in school or in the evening, when they were doing their homework. Although securing specific learning time at work was difficult, she emphasized that she was able to apply what she had read in the work situation.

S. planned some time in his daily calendar, but concerns of the staff on the nursing unit were his first priority:

> Yes, and sometimes I would slot in a couple of hours, unless there was something the staff wanted me to do, 'cause that was my priority.

He did much of his learning in fifteen to thirty minute sessions between other activities.

Management of time, then, seems to be related primarily to the pressures of other responsibilities and self-directed learning does afford some flexibility.

5. Summary

In summary then, planning involved four major concerns. Subjects chose themselves as planners for the following reasons:

1. Subject matter could be individualized and applied to the specific situation.

2. Subjects did not have time to wait for a formal offering.

3. Self-directed learning was an expectation of their position.

4. Planning the learning project themselves afforded more flexibility.

Subjects tended to plan their activities based on available resources and perceived progress. They were not particularly aware of making choices at the time. Sequencing of content occurred in various ways including skimming material, then developing an outline; planning content as each step was completed; using related constructs; and responding to immediate situational demands.

Securing resources, mostly print, was largely done using sources within the hospital, though one subject used several sources.

Management of time and location for learning depended

on job and family demands.

Planning was influenced significantly by context as well as formative evaluation.

C. Implementation

Implementation is the activity which results in actual learning. Included in this area are two categories: the resources used, and the interaction of the learner with the resource termed learning activity.

1. Resources

The term, 'resources,' here refers to content resources. The six subjects in this study used a variety of resources, primarily print. Human resources were used to some extent as content resources, but more often they were used as process resources. Each subject used more than one type of resource. The variety of resources and their use by each subject is indicated in Figure 5.

2. Learning Activity

The acquisition of knowledge, memory, and structuring knowledge is largely an internal process which the subjects could not describe. Rather, they tended to describe strategies for learning particularly from print. Most of the subjects started by skimming the article, document, or section of a textbook to ascertain what kind of information it contained. P. described this activity:

FIGURE 5

RESOURCES UTILIZED

Subject	Texts	Journal Articles	Documents Within Institution	Documents From Other Institutions	Film	Field Trip	Individuals In Work Environment	Family and Friends
D	X	X	X			X	X	
P	X	X	X			X	X	X
T	X		X	X			X	
E	X			X	X		X	X
N		X					X	
S		X*			X		X	X

* More than 100 articles

> Usually what I do is scan the article and see if it is what I think I'm looking for and if it is, I'll go into a little more depth.

E. also scanned to ascertain what kind of information was available for future reference:

> I read it for information, but also to know what was there for further reference for different specific things.

To remember and use specific information, some subjects made notes. S. discussed the role of note taking:

> I made notes. I pulled from those. I made notes for myself to learn. And then I refer to my own stuff. I never go, rarely do I go back to the original article . . . because I summarize it. Like I read the article then summarize it in my own words and it has more meaning for me.

S. employed a particular kind of note making; that is, he summarized and reworded concepts to suit himself. This indicates some restructuring of knowledge.

P. describes her note making somewhat differently:

> Then I write down key points or phrases. If it's a photocopied article, I'll highlight quite often, the key sentences or whatever.

P. describes choosing the most important points which does serve as a summary to some extent, but there is no mention of rewording. P. and D. also indicated that they shared and discussed each other's notes which was useful. D. also mentioned that after making notes on an article she had reread in order to:

> ...make sure that I understood what was being said in the article.

D. dicussed another dimension of her learning from print:

> It stimulates me thinking is what it does. I may

> not necessarily agree with everything they say, or pick up on it, but it will stimulate me to agree with it or definitely disagree with it, so that stimulates me further as to why I would disagree with it, so it's kind of a stimulus to force me to think about things a little bit more in depth.

D. is indicating that she does not simply attempt to absorb knowledge, sponge-style, but compares what she is reading to previously attained knowledge and beliefs.

Two individuals used film and could say only that they had sat and viewed the material.

People were used as content resources by all subjects. S. asked direct questions for information:

> Interviewer: Were you talking to your colleagues to get information? To validate what you had found out?
>
> S: To get information. And I did get information. I have that information because it's all in writing but I didn't use it all. I took notes while I was talking to them.

E. described a more informal type of interaction with her husband, who is a physician:

> He's an excellent teacher and he loves to tell me stories. I really feel fortunate.

N. interviewed her colleagues to ascertain their expectations and ideas regarding the program she was developing:

> What should everyone know in the first week? And we went about finding that out in various ways - like there was interviewing with staff, and I interviewed all the nursing home directors and the head nurses here at the auxiliary.

She used a structured interview to gain information about the situation for her product, but also she was applying one of the techniques about which she had learned. Subjects also mentioned casual encounters with others where a speci-

fic question was asked and answered.

The preparation of the desired product-program, presentation, nursing care - provided the opportunity for the subjects to organize, integrate, and apply knowledge they had acquired. As mentioned previously, N. applied acquired knowledge immediately as she progressed in developing a program. P. also discussed the importance of immediate application:

> I wanted to start trying some of the things I had learned. And I had seen them outlined in different methods, I guess, and I would like to get going and try some of them out . . . I wanted to get going and find out for myself what would work.

3. Summary

Implementation, then, involved interaction with resources, which were largely print materials for five subjects, and people for a sixth. Subjects described various purposes and styles of note-taking and discussions with individuals. The preparation of the desired product (action) provided the mode for application.

D. Formative Evaluation

Formative evaluation is an appraisal of both the learning accomplished and the efficiency and effectiveness of the learning activities throughout the course of the learning project. Formative evaluation forms the basis for alteration of goals, planning strategies and learning activities.

Summative evaluation is a terminal appraisal of the learning project's success. Indications of the state of the learning project can come from internal sources such as feelings and thoughts and external sources such as feedback from other individual and test products. All the subjects used these sources in evaluating their progress as a basis for further activity.

Positive feelings about their progress were mentioned by all subjects. T. described the "Aha!" phenomenon:

> When I feel I'm on to something, I get this 'Aha, I've got it!' attitude and I get quite excited about it and I can't help but share it -- so I suppose that comes to me first and I feel kind of happy and satisfied that I have something that will meet needs. And I get that feeling inside.

D. described a feeling of comfort with the subject area and a rising level of commitment to the project:

> I came to a point where I felt quite comfortable with it . . . As I started to learn and see how nursing audit was incorporated into hospitals and how it was used to work for the hospital, then I started thinking, 'Hey, yeh, this is okay.'

Unpleasant feelings were also indicators of the subject's progress and the need to alter some aspect of the project or to move on to other activities. P. described reaching a point of saturation in her reading:

> Like you can only read so much and after a while information starts to repeat itself because you've already learned it. It gets monotonous as well, too. But I think the most frustrating thing for me was doing all this reading and then what are we going to do with it?

Although feeling frustrated was not particularly pleasant, it provided the impetus for P. to move on in her project.

She spoke to her sister and wrote her feelings down. She then took action by consultng with her colleague:

> I told D. that I thought we needed to get together and work on sharing information again so we knew exactly where we were going.

N. also experienced frustration when she felt she wasn't progressing quickly enough:

> I found that my frustration levels rise just about the time I need to sit down to think where I'm going from here, and take a look back at what I have done already and sort of be a little bit satisfied that I'm getting some place.

She also has a colleague to whom she talked when frustated:

> If I'm frustrated, I go in there and have a coffee, and usually just by talking to each other about what we're frustrated about eases that, and we can go on and do whatever it was we were doing.

All the subjects utilized persons at work or outside to give them encouragement and positive feedback on their learning project. P. describes her interaction with her supervisor this way:

> C. was more a resource and also a sounding board. I would bounce a lot of what I had learned off of her to see if that was the direction she was thinking as far as nursing audit was concerned. And to kind of test myself as far as my own knowledge. Test to see if I had my thoughts straight or if I had misinterpreted something.

In this example, P. not only received feedback on her progress in general, but also, through discussion, determined the state of her own knowledge.

The ability to tell another person about some part of the content area studied without aid of notes and to discuss the concepts comfortably was one of the major indicators

that acquisition of knowledge was taking place throughout the project. E. was able to do this frequently as she taught patients about their diabetic condition, but she talked with others as well:

> As I'm talking with more people, I can test out - sometimes when you read, you're not really learning, you're just reading, but when you know you've learned is when you can give it back.

S. also described talking with his supervisor:

> I read the stuff and I would go talk to T., tell her all about it. I wasn't reading it anymore now. I was telling her about this great stuff that I had learned . . . And as I would talk to T., as an example, sometimes she would say, 'Yeh, well what about this?' and I would have to think about it. Maybe I would think, 'Well, maybe I need to learn a little more about that.'

S. also said he talked to himself in front of the mirror pretending he had an audience.

Those subjects who had prepared an outline to follow in learning about different dimensions of their topic also used it to evaluate their progress. As mentioned previously, T. used the organization of the nursing process to develop program development guidelines:

> And so I looked at assessment, planning, implementation, and evaluation, and so when I felt I had addressed those points, I stopped.

S. also decided on an outline for his presentation early in his project:

> As I learned about each one of these areas that I had decided I was going to present, I felt I was learning what I was wanting to present, what I wanted the final outcome to be, what I wanted to present to the staff. I felt that I was learning about all these areas.

Several of the subjects completed tasks which contri-

buted to the final product as they were learning. The completion of these tasks and response from others provided feedback for N.:

> And I shipped (the checklist) out to the wards to ask for any comments and asked them to add and delete and there was a fair amount of changes on the first one.

D. and P. also got together and presented information sessions to staff to acquaint them with progress made and also to receive feedback:

> When D. and I were giving information sessions to the nursing staff on quality assurance, I had to go over it afterwards, and feel for myself how it went and what I would do differently next time . . . what the response was and how D. felt about it. It was important for me to be able to do that.

Thus D. and P. obtained feedback, not only on the presentation itself, but also on the state of their own knowledge.

E. also mentioned one other indication that she had learned sufficiently, although she continues to encounter diabetic patients:

> I wasn't challenged. I wasn't asked for anything more . . . I suspect that if I had a patient that needed more than I knew, that I would reach for it, but so far it's tapered off, and I haven't had that challenge.

Formative evaluation appeared in many forms during these learning projects and in many cases, served as an energizer in the continuation of the project.

Sources of feedback for formative evaluation were varied. Subjects experienced feelings of comfort or discomfort and boredom which indicated their progress. Subjects used

other individuals for encouragement and general positive feedback. They also used individuals as audiences, that is, listeners to their verbalization of their newly acquired knowledge. Clear goals in the form of subject outlines or interim products were also used to assess progress.

E. Summary

The active phase, then, consisted of goal setting, planning, implementation, and formative evaluation. Each subject proceeded in these areas in varying ways. Although each category was discussed individually, often these activities were intermingled and closely related to each other.

Summative Phase

Summative evaluation is an appraisal of the success of the learning project when it is largely complete. All the subjects noted that they continued to learn more about the subject of the learning project described. However, they all acknowledged that their major effort to learn did have an ending point. Two major kinds of summative evaluation were used. One was evaluation of the product or action resulting from their learning. The other was an evaluation of the knowledge gained, which was not entirely represented in the product.

A. Product Evaluation

Included in product evaluation is the description of the product, sources of feedback, and valuing of the product.

D. and P. were both involved in learning about nursing audit in order to implement audit as part of the quality assurance program. The products mentioned by both subjects were a chart audit tool or form used to gather data on documentation of nursing care, and the inservice sessions given to introduce the tool. D. describes development of the chart audit this way:

> We actually did a small informal audit, just constructed a tool ourselves, kind of thinking of basic things we'd like to see in charting. Then we went around to most of the areas and did the audit. Then we went back to the areas and gave them feedback as to what we had found.

D. and P. made changes in the audit tool and at the time of the interview, were ready to institute chart audit using the revised tool. D. and P. used each other to evaluate the draft of the tool, as well as comments from staff members. They also received positive feedback and encouragement from the inservice sessions they presented. In this case, then, feedback was obtained regarding specifics of the product and positive valuing was indicated by others regarding the presentation.

T. prepared guidelines for program development for her staff of educators. She described the guidelines as being short and concise as she had wanted. She first applied the

guidelines to a program herself:

> I had to put together a program in a short time for recovery certification and I sat down and I did the program content and development by myself but with collaboration with the head nurse from recovery room . . . It wasn't that difficult to follow the guideline . . . it really made a complete program - that there weren't bits and pieces all over, that things were fairly clear.

Then the guidelines were used by staff members. Not only was the documentation of programs improved, but T. observed other positive results:

> So they used the program development as a guide, but they are really using each other to word different paragraphs, to write different objectives, and to be sure that the objectives are matched to the criteria for the testing, things like that. I think they are analyzing a lot more.

She has found a couple of aspects of the program development guideline that could be improved and she plans to make some revisions. She also received positive feedback of a more general nature:

> It seemed that more of (the staff) were very happy to have the guidelines . . . when I was done, (my supervisor) was so pleased with the project that - that's the kind of thing I really thrive on as well.

Like D. and P., T. received specific feedback on the usefulness of her product and general positive feedback.

N. developed a program for orientation of staff in extended care facilities. She created two sub-programs for different levels of staff. She describes her program as a combination of class presentation and checklists, and backup material to be used by preceptors. N. discusses the implementation of her program:

> We decided to go with what we had for a trial period and see how it was working out and monitored the people going through the program and the people who were acting as preceptors . . . I had to change after the first day of orientation to lower my expectations a little and not include so much and simplify it.

The program was run again and N. said:

> It worked a lot better for the second group, but there's still a little bit of change needed so we've done that but I think I'll leave it for six months now and then look at the evaluations of the people who have gone through.

N. also stated that writing up the program according to program guidelines will provide a good retrospective look. N. has described a formal evaluation process which gave her specific feedback on varying aspects of the program and its success.

S.'s product was several presentations of a workshop on stress management for staff. He used the approach of one author primarily with related information mainly from print material. He also used one film. He felt he was able to tailor-make his presentation to the audience and he 'felt good' about his efforts. The feedback he got was largely informal, that is, participants approached him and told him his presentation was good.

E.'s product was the care and teaching of diabetic patients. She described patients she had cared for and her ability to individualize her approach. She described her care for one patient this way:

> There was a 45 year old lady who was newly diagnosed and I spent a lot of time with her and she was having this adjustment to a chronic illness -

> rest of my lifetime kind of thing so . . . she wasn't ready for a lot of information. She needed a lot of support and she needed to know the basics in good detail so she had something to build on . . . So you forgot about giving her a whole bunch of stuff and really concentrate on short periods of learning for her. She was a really rewarding patient because she did learn very well and was keenly interested in it and mainly she said to me afterwards that I didn't push it all on her, that I knew enough to let up.

E. received direct positive feedback from other patients as well. She also used a more direct method to judge the effectiveness of her teaching:

> You always check to see if your teaching has been effectual. You get them to give it back to you and that's not only once - you can do it once and then they might be able to give it back but you go in the next day and they can't remember so you start over again.

E. felt that her ability to teach effectively and to adapt her care to individuals indicated that her project had been successful.

All subjects regarded the products of their learning project as successful as indicated by various combinations of formal and informal evaluation.

B. Knowledge Evaluation

Evaluation of knowledge gained is related to product evaluation, but all subjects indicated they had learned more than what appeared in the product, as S. acknowledges:

> Interviewer: You learned more than what appeared in your workshop?
>
> S: Oh, yes, because my workshops I'm lucky if I can have a day to do them . . . and I could do it for three or four days.

All subjects also indicated that although they were happy with the learning accomplished, there remained much to be learned in the area. E. describes her need for further pursuit in the area of diabetic care:

> You know I have to do a lot more. I've slowed down a bit now, but I'm still interested and anything that catches my eye about it, I'll pick it up and pursue it or when I feel the need to be refreshed, I'll go back to it because I want to.

N. acknowledged that she had learned more than she had anticipated:

> I think I learned more than I set out to learn. I just wanted to get this silly program put together and I didn't realize when I started that it was so much -- program planning is a big thing and so I'm still learning how to put programs together.

She also indicated that this learning project has provided a basis for future learning:

> Since then I've done a lot of subsequent learning, like articles that you flip past that have never interested you in your life, you start reading. Like you know, curriculum stuff, program planning, staff development, and those kinds of things that I've never even looked at before now interest me.

One of the criteria for selecting a learning project for this study was that it be successful, so it is not surprising that the subjects were happy with learning accomplished. Most of the subjects were also pleased that they had conducted the project succesfully themselves.

Factors Influencing the Learning Project

Several factors influenced the way in which these six subjects conducted their learning projects. Some factors

are internal. They include previous knowledge in the subject area, beliefs and attitudes about learning and general learning style. These factors are often termed entering behavior. The environment or context in which the learning took place will also be discussed.

A. Internal Factors

1. Previous Knowledge

Previous learning in the subject areas varied considerably among subjects. P. and S. both acknowledged that they knew very little about the subject area except that they had heard the term. N. described her previous knowledge this way:

> Like I knew how to orientate someone on the floor because I had been there and I knew as a head nurse what I needed my staff to know in the auxiliary, but that didn't cover the nursing homes and it didn't cover how to go about systematically putting the program together and assessing what needed to go into it and all of those things.

D. had considerably more knowledge in her subject area. She had participated in an audit while a staff nurse and had attended a workshop on quality assurance just before she assumed her current position. E. also had previous knowledge in the area of diabetic care from her original nursing training and practice. She did find that much of that knowledge was outdated.

T. probably was the most knowledgeable in her subject area when she began. She had taken a teaching course,

attended a related workshop years before, and was familiar with some of the resources available. The major influence of previous knowledge seemed to be in the specificity of objectives at the beginning of the project.

2. Learning Style

Included in learning style are subjects' comments regarding the way in which they generally go about learning and the ongoing learning they engage in on a regular basis.

Five of the subjects stated they like reading and read articles from journals consistently. T. is a particularly avid reader of professional journals:

> So quite often first thing in the morning, I'll do some reading and quite often before I leave at night, I'll do the reading . . . I love to read things like that. I find it a diversion. I kind of set reading time for studying and I kind of look at that different than reading time for work.
>
> If I do so much of the study reading, I'll reward myself by reading something about learning needs.

E. also described her ongoing learning efforts:

> In those mornings is often when I read my journals. I've got, for instance, a patient who has hypertension, malignant hypertension. There was an article on hypertension crisis in Nursing 83 and I grabbed it, and this patient, she was a carbon copy of what they were talking about in that and I really learned a lot from that.

N. on the other hand, does not learn as well from reading:

> I find it a lot easier - like I do read, I like to read the stuff, but I cannot learn as well from reading as I can from actually doing it and just have someone keep an eye out for me. If I can find a mentor someplace who is willing to spend a few minutes with me, I can usually talk through.

> Even if I choose to learn something and I do it by reading or by observing somebody else do it, or actually watching a videotape or filmstrips or something like that, if I don't have the opportunity to use it within a short period of time, it's gone.

This preference for learning method was reflected in the way in which N. learned how to plan a program - learning about one step at a time, then applying it immediately.

These last two examples again illustrate ongoing learning in response to job demands with immediate utility in mind.

3. Learning Belief

Learning beliefs are generalized notions about how learning takes place, as well as valuing of learning. All subjects made spontaneous statements revealing their beliefs.

Three subjects expressed the notion that learning is an internal individual process. D. offered the following statement:

> You each have to go through your own learning process.

T. stated a similar belief:

> I realized in the past few months that people really have to go through this process to some degree for themselves.

E. stated more specifically that individuals learn only what suits them:

> I don't believe that anyone has ever taught anything to anybody else . . . People learn. They take what they want . . . Some people will take a

> lot; some people will choose to take absolutely nothing.

P. further indicated that people must learn from their own mistakes and omissions.

Several subjects also indicated a belief in the need for self-directedness.

T. described this aspect as follows:

> It's part of the self-directedness that's required in an institution. People will not give you given gifts and quite often your need is identified and you must pursue a solution.

E. stated the need for self-directedness this way:

> And I do get bored with nursing and when I do get bored is when I have to go and get . . . what I'm trying to say is 'Okay, I'm bored. Let's find something that's interesting.'

These two subjects also indicated that they believe learning is as T. said, a life-long process:

> If you want to be a learner all your life, you have to learn to learn anywhere.

E. particularly values life-long learning:

> I think nursing is an ongoing thing, I don't think you're ever finished learning.
>
> I really like to learn and I think living is learning and if you're not, you might as well give up.

All of these beliefs are related to the decision to undertake the learning project.

B. Context

Self-directed learning projects take place in a particular context which includes the work environment and life-style outside work.

The work environment includes factors such as type of position and its requirements, supervisors and colleagues, and informal demands and expectations. All subjects viewed their job environment as being supportive of learning endeavors, though E. found that time for learning was limited in the job situation.

Three subjects were in new positions and considered the assumption of the new position as an opportunity to learn. N. described this:

> And I knew when I came into this job that I didn't have a clue about education and everybody else knew that I didn't too, so it was a comfortable time to ask somebody to walk me through [a program].

These subjects also found that time for learning was abundant when they assumed their new positions. Positon change did, however, place some demands on these individuals, as indicated by D.:

> We wanted to be very visible and, as we worked on the program, introduce how far we'd come . . . We're not just sitting in an office dreaming up questions to go out with a whip and tell them how to behave.

P. also described the pressure from colleagues to prove herself and allay anxieties:

> At that point, quite a few people were asking me what I was doing, when were we going to get going with this?
>
> She would relate a few things to me as far as staff reception and questioning and skepticism, concerned about my job. I kind of felt I needed to prove myself at that point.

N. found she had to spend some time working on administra-

tive details to implement the new program:

> We were also going to have to fight for a little orientation time . . . so we kind of went on hold for a little bit until I could find out how much time I could get for orientation.

T. experienced many demands when she assumed a new position:

> Because at that time, I was so pressured in a new job, trying to sort out priorities and trying to integrate all the information I had absorbed from other departments . . . that I had a lot of work to take home, and a lot of reading to do at home.

Most of the subjects experienced general support and encouragement from individuals in the work environment. D. described this aspect:

> From D. and the other A.D.O.N.'s, I got a fair bit of encouragement . . . notes - 'Keep up your efforts,' that they're appreciated and that kind of thing from administrators
>
> You really need that, those strokes once in a while. As it is, I would say it is isolated kind of work.

T. was also appreciative of the support of her supervisor:

> She didn't demand that I do this and she didn't give me any specific information. She knew I was thinking about it and really thinking about getting something out that would meet our needs and when I was done, she was so pleased with the project and that's the kind of thing I really thrive on as well. Like I knew she wasn't supervising me every minute of the day and that she would leave me plenty of room to develop it in whatever way I wanted to.

T. is indicating not only support received from her supervisor, but also freedom to pursue her project. N. also had a good relationship with her management group:

> I had a working relationship with the people and we worked well together on the whole . . . They were quite supportive along the way.

Two subjects indicated that there was some problem with individuals in the job situation which had to be attended to. T.'s staff were feeling anxious and frustrated with program development which created some pressure to finish the program guidelines. Also, T. took this into account when introducing and getting feedback on the guidelines:

> They didn't respond joyously because at that point, program development was a very sore bone and I didn't want to push anymore.

P., on the other hand, experienced a breakdown in communication among her supervisor, colleague, and herself.

> I felt that there was a breakdown in communication, too, to a certain extent. It seemed like everybody was sort of going in their own direction and we weren't communicating between each other.

These difficulties encountered by P. and T. were dealt with and did not appear to be major obstacles in the learning process. This would be expected in successful learning projects.

E. commented on the influence of her activities outside work as she did much of her learning at home:

> I have four children and I only work part-time, so my life at home is very busy . . . For the first time in sixteeen years, I am free from 8:30 to 4:30. The children don't come home for lunch. So the days I'm not working and I'm not doing volunteer work at the school or shopping or something like that, I have this quiet time that I can take.

E. sees her lifestyle as quite conducive to learning activities.

Other contextual factors such as resources available and time were discussed previously and related to other

aspects of the self-directed learning project.

CHAPTER FIVE

SUMMARY AND DISCUSSION

Summary

A. Model of the Self-Directed Learning Project

The model of the self-directed learning project developed by the researcher, from the reports of a self-directed learning project from each of six nurses, contains components that are delineated in the program planning and instructional design literature. Although the delineation of categories in the model may have been influenced by the type of probes used during the interview, the model is general in nature. Benson (1975) reported that the self-directed learning projects in his study were organized similarly to conventional approaches to planning programs, so the applicability of a general teaching model could be expected.

The phases, pre-active, active, and summative, occur in sequence. However, components of the phases do not necessarily occur in a linear progression. This is particularly apparent in the active phase where setting of goals, planning, implementation, and formative evaluation may take place repeatedly and in varying sequences as reported by

Tough (1979a, p.12). Each project was unique in terms of sequencing and activities.

This model represents a beginning conceptualization of the processes involved in the self-directed learning project based on the constant comparative method of qualitative analysis, a technique of the grounded theory approach. The model serves two major purposes:

1. Identification of components and interrelationships which can provide focus for further study, and
2. Provision of a structure for self-directed learners and educators in guiding self-directed learning projects and identifying problem areas.

B. Components of the Model of the Self-Directed Learning Project

The subjects' reports of their behaviors related to the components of the model generally confirm the finding reported in the literature. Following is a summary of these components.

1. Pre-Active Phase

The primary stimulus to begin in all the projects described was some kind of job demand. For four of the subjects these demands accompanied a change of position of employment. Cross (1981) found job demand, often precipitated by change in position, a major stimulus for learning and most career-related adult learning projects are prac-

tical and directly applicable to the job. In all cases in this study there was a demand for some sort of product or action.

Although most subjects could have performed the task required to some extent without making a concentrated effort to learn, they all indicated a desire to perform effectively and efficiently, so they felt a need to engage actively in learning. Tough (1980, p. 37) describes this as a desire to experience pleasure and raised self-esteem during application of the knowledge or skill learned.

Motivation to act on the perceived learning need arose partially from the job demand itself and also from time constraints or deadlines imposed by the institution or the learners themselves.

2. Active Phase

a. Goals

Beginning learning goals were largely product related and varied in specificity depending on the subjects's previous knowledge of the topic. The goals became more specific and were altered in some cases as the subjects became more aware of what kind of knowledge was contained in their area of interest and as they referred to the particular job demand in that institution. Thus the setting of goals was an evolving process unlike the standard approach to program planning where setting goals is an early task. The program

planners, however, have one big advantage, that is, they are content experts or have access to some.

b. Planning

i. Choosing Self as Planner

All six subjects reported similar reasons for choosing to plan the learning project themselves and these are consistent with the findings from previous studies (Tough, 1979, p. 90; McCatty, 1975). The major reasons include 1. individualization of content, 2. time pressure, 3. availability of resources, 4. flexibility, and 5. belief in the value of self-directed learning.

ii. Planning Activities

The subjects in this study tended to plan their activities as their learning progressed, and there was little advanced overall planning. Also the subjects were not aware of systematically making planning decisions at the time but could describe some aspects of planning in retrospect. Choice of learning activities was largely related to resources available. Considerable variation in sequencing of content was apparent. Three subjects skimmed various printed material, then developed an outline of sub-topics to be learned. One learned step by step, completing one segment then deciding, with assistance, what was needed next. Another subject used a previously learned structure, the

nursing process, to organize her learning and the sixth subject reviewed previously learned material, then responded to the requirements of the particular patients for whom she cared. These differences in sequencing content seem to be related to previous knowledge in the content area, preferred learning style, and situational demands. Only one subject required considerable assistance in deciding what and how to learn which Tough (1980) reported as a common focus for help. No attempt was made to explore the relative efficiency of these methods.

iii. Securing Resources

As mentioned previously, printed material was used most extensively in the learning projects studied. Most of the subjects secured resources from within the hospital, some using the librarian or other individuals for assistance in locating material. One subject searched extensively at university libraries and the private libraries of acquaintances. One subject primarily used books she already possessed. The "people" resources used were present in the learners' immediate environment. One subject secured the assistance of a professional educator within the hospital.

iv. Management of Time and Location for Learning

The use of time was quite varied among the subjects depending on job and home demands. Two subjects were able to devote long periods of time to their learning projects as

they had few other job demands at that time. Three other subjects fitted their learning around other job responsibilities setting aside time for learning. The remaining subject studied mostly at home. The other five subjects had office space at the hospital suitable for study. Time and location for learning did not seem to pose significant problems for any of the subjects.

c. Implementation

i. Resources

All subjects used more than one type of resource. Printed material was used most extensively, followed by human resources.

ii. Learning Activities

Subjects could not describe the internal processes involved in learning but they did describe some strategies used, for example, making notes, underlining key concepts, re-reading and reacting to print by agreeing or disagreeing. These strategies indicate varying ways of re-structuring knowledge. One subject took notes while interviewing a colleague. Another subject described several activities such as check lists and questionnaires used to gather information from others and to apply what had been learned. The activity of preparing the presentation, or document also

served as an opportunity to integrate and organize material learned.

d. Formative Evaluation

Formative evaluation greatly influenced activities during the active phase. Subjects used internal sources such as the feeling of "Aha!", comfort, frustration, and boredom with repetition as indicators of their progress. Two subjects also used their outlines to track their progress. They also relied heavily on interaction with others such as supervisors, colleagues, and family members. These individuals had several functions: to listen to the learner relate new knowledge, to discuss with the learner and question him, to give direct feedback on the value and applicability of the learner's new knowledge and insight and to suggest other areas of study. This reliance on human helpers for evaluation has been reported by Tough (1967) and Benson (1974).

3. Summative Phase

This phase involved the appraisal of the success of the learning project. All six learning projects resulted in some sort of product or action: presentations, documents, and patient teaching. The subjects received feedback on their products, some formal, written evaluation and some informal, comments from patients or members of the audiences. All made some revisions based on the feedback they

received. Learners were also indicated to themselves the success of their products based on their observations of the effect of the product, i.e. whether or not the purpose was achieved.

All the subjects indicated that they had learned much more than was represented by their product and most have continued to pursue the subject area of their learning project in a more casual way, for example, by reading journal articles they encounter.

4. Factors Influencing the Learning Project

The effect of factors such as previous knowledge, learning style, learning belief and context have been discussed as they relate to various components of the model of the self-directed learning project. No systematic attempt to discover precise effects was attempted in this study. All the subjects stated that they valued continuing learning and self-directedness. They were all generally active learners and functioned in a job environment that seemed to be supportive of learning efforts. The range of salient factors reported was limited by choosing active self-directed learners to describe successful learning projects.

C. Human Resources

As has been noted previously, there is some support in the literature for the need for educators to concern themselves with assisting adults in their self-directed learning

projects. To this end, then, it is useful to consider the kinds of human assistance utilized by individuals in planning and conducting their own learning projects. The literature revealed that most adults used more than one person to help them and that these helpers performed many functions (Tough, 1967). All the subjects in this study utilized one or more individuals for assistance.

In the pre-active phase, individuals in the subjects' working environment indicated directly and/or indirectly the need for some sort of action to meet a current need. Accompanying these indicators was, in some circumstances, an expectation that the subject engage in some sort of related learning activity.

In the summative phase, individuals were the consumers of the product or action and gave the subject feedback either directly through written or verbal comments, or indirectly, by demonstrating that they had learned or changed their behavior as a result of the product. In some instances the subjects' supervisors commented on the success of the results of the project.

It was during the active phase that human assistance was utilized most extensively in conducting the learning project. To a minor degree, other people were used as content resources. The librarian was utilized by three subjects and all subjects used references suggested by colleagues. One subject relied on another individual to suggest possible next steps in planning learning activities.

The most significant contribution of human helpers was in formative evaluation. All subjects needed people with whom they could explore and discuss their ideas and knowledge. As well as serving to indicate to the subject his progress in learning, this activity probably served to assist the individual in focusing, verbalizing and integrating new knowledge. Supervisors, colleagues, and family members were also important for their provision of general encouragement.

The focus of human assistance described above is quite different from traditional teaching methods where the human teacher is primarily the planner and content resource.

Discussion of Limitations

Because this study is exploratory in nature and concerned with the personal experiences of the subject in planning and conducting a learning project, a naturalistic approach using the open-ended interview method was used to gather data and the constant comparative method, a technique of the grounded theory approach was used to analyze the data. Several limitations accompany the use of this design with a small group of subjects.

Although the subjects in this study shared some characteristics such as profession and place of employment, they did not comprise an entirely homogeneous group. Job and family responsibilities varied considerably. For example, E. was a part-time staff nurse who had returned to nursing practice after raising young children, and she exhibited

strong commitment toward being a very good nurse. She conducted most of her learning outside working hours. P. and D., on the other hand, assumed new positions which required initial intensive learning in order to fulfill job requirements. S. and N. were both single, clinical educators who conducted their learning projects concurrently with other job responsibilities and in direct response to staff needs. T. also experienced numerous job and family demands. These individuals adapted their learning projects to their own situations while exhibiting the processes indicated in the model developed by the researcher.

All of the learning projects concerned the learning of concepts and principles. One might expect to encounter more variation in activities if other types of learning, such as manual skills or interpersonal skills were to be examined. Also, the subjects were chosen because they were perceived as being good self-directed learners and the projects chosen for discussion were successful learning projects, so one would not expect numerous major difficulties to be reported. The ranges of behaviors reported, then, are not presented as an exhaustive account of activities undertaken in self-directed learning projects, thus caution is necessary in attempting wider application.

The open-ended interview presents other limitations. The probes used by the interviewer are subject to bias and may have guided responses to conform to a predetermined structure. Use of probes, however, provides for some com-

parability of data. Although the meaning individuals ascribe to their own experiences is significant, especially in terms of self-image and future action, there are obvious problems with retrospective reporting where accuracy of recall cannot be guaranteed.

The method of analysis in this study has some advantages related to theoretical development grounded in the data. However, there are some limitations. While one would expect independent analysts, using similar approaches, to arrive at similar conceptual divisions given the same data, the naming of categories and description of qualities would exhibit some variation. In this study, one committee member's independent analysis of some of the data yielded conceptual divisions organized in a general teaching model consistent with the model developed by the researcher. To minimize misinterpretation of data, the researcher had two of the subjects read the analysis and check that the interpretation of quotes and examples from their interview seemed reasonable. Some researcher bias is also introduced by the choice of examples and the wording used by the researcher to summarize the subject's experiences.

Finally, to fully use the grounded theory approach, theoretical saturation is necessary. This would require data from a wide variety of individuals engaged in many types of learning projects. Thus, this study represents a beginning, tentative conceptual structure of the activities of adults conducting their own learning projects.

Implications for Educators

Continuing learning in the professions, certainly in nursing, is necessary in order to maintain competent practice. Nurses rely heavily on self-directed learning to meet their learning needs (Clarke, 1979) and, like other adults, do spend considerably more time conducting self-directed learning projects than in learning through more formal offerings (Moran, 1976). Adult educators contend that the professional educator has a role in assisting individuals in conducting self-directed learning projects (Hiemstra, 1980) though some do acknowledge that assistance and support of self-directed learning could easily become interference. There are several functions the educator could perform for self-directed learners that can be extrapolated from this study. The subjects in this study utilized other individuals most extensively in the processes of formative evaluation and evolving goal setting. The educator could help directly in this process or assist the learner in identifying ways to evaluate what he is learning, including discussion with appropriate others or preparing interim documentation or presentations. Another possible function of the educator is to assist learners in securing content resources. Librarians are particularly well-suited for this function, especially with regard to print resources, but other types of resources are also available through the library and other resources. One particular difficulty with

self-directed learning projects is appraisal of the results of the projects. Educators could help learners to plan techniques for securing specific feedback regarding the product(s) of the learning project. As reported by Tough (1967), help was needed in all planning steps of the learning project by one or more subjects in his study so help must be highly individualized. The model developed by the researcher in this study could serve as a structure to help the educator and learner to visualize what components are important in the learning project and to analyze the nature of problems encountered. Even among the small number of subjects in this study there was considerable variation in planning and learning style, most of which did not fit into the traditional program planning sequence. Educators must, then, respect differences in learning style. It may be useful to suggest techniques that would improve efficiency and effectiveness in planning and learning, but, for example, to try and make the learner establish goals early in the project when her style is to set goals as her learning evolves, sometimes via a rather torturous route, would be discouraging and irrelevant to the learner and would amount to interference. Reasons for choosing self as planner, such as flexibility and opportunity to adapt learning to individual needs and styles, are powerful motivators and thwarting these through excessive interference is counterproductive. The learner needs encouragement and positive feedback from others in his environment as well.

Another issue, particularly in nursing, where there is a trend toward mandatory continuing education for licensure (Flaherty, 1979), is the credit or recognition given by the institution of employment and the professional association for self-directed learning. Nurses are engaging in numerous self-directed learning projects directly related to their practice and learning needs and deserve credit for their efforts. The major difficulty stated is the problem of evaluating the results of self-directed learning projects as mentioned previously.

As Clarke (1979) notes, many nurses have not been prepared for self-directed learning by their professional education. As nurses undoubtedly will continue to utilize a self-directed approach to meet many of their learning needs as practitioners, preparation for self-directed learning is significant. The graduate must value self-directed learning as a legitimate enterprise, not just a poor second alternative to formal offerings. There is also a need for the learner to be aware of and appreciate her own learning style. To fulfill these objectives, experience in conducting successful self-directed learning projects within a formal education program is necessary. As well, learning specific planning, resource searching and learning techniques, such as interacting with print and audio-visual material and interviewing human content resources, would improve the efficiency and effectiveness of self-directed learning.

> The research confirms that adults want additional help and competence with planning and guiding their learning. If educational institutions provide that help, if they approach the adult as the learner and help adults to better plan, conduct and evaluate their own learning, the learning society will flourish and so will educational institutions (Delker, 1979, p.6)

Implications for Further Research

The most obvious implication for further research is the need to attempt theoretical saturation by gathering data from a variety of individuals concerning a range of self-directed learning projects. One would expect that this would result in refinement and adjustment of categories, the range of behaviors in each, their properties, and interrelationships which comprise the model of a self-directed learning project.

The model does present a conceptual construct which has value in integrating research on particular aspects of self-directed learning thus serving the function of a bridge between research and practice. For example, research into methods of formative evaluation could be related to the other components of the active phase.

This study did not address the issue of efficiency and effectiveness of self-directed learning and this remains a concern of educators. Another practice oriented area for further research is the study of the effect of the environ-

ment or context, human, organizational, and physical, on the success and amount of self-directed learning which occurs. This is particularly important for institutions of employment. Further studies to determine the kinds of assistance to self-directed learners which are truly helpful would be valuable.

The adult education literature supports the study of self-directed learning as a legitimate endeavor. The model developed in this study is an attempt to formulate a conceptual construct of the processes involved in the self-directed learning project to further research and guide learners and their helpers.

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APPENDIX I

INTERVIEW FORMS

SHEET A

New job responsibility

Decision that must be made

New technology, drug, tretment, illness

Difficult patient problem - physical, psychological, emotional, social

How to teach or supervise others

Need to teach something

Some institutional change or new policy or program

Management skills

Awareness, communication skills, interpersonal skills

Staff problem

Job change

SHEET B

Do you remember making an effort to learn something in particular from any of these sources?

Other nurses

Other health professionals

Journals

Films, videotapes

TV program

Observing someone

Textbooks

SHEET C

1. Did you spend more than 8 hours planning and learning?

2. Did you conduct this learning project in more than one episode?

3. Was learning some particular knowledge or skill the primary focus?

4. Who was the primary planner?

   A. You
   B. Another person or people
   C. Non-Human resource

5. Was your learning successful?

   A. Not very
   B. Moderately
   C. Very

6. Is what you learned important to your professional career?

   A. Not very
   B. Moderately
   C. Very

7. How much do you use what you learned in your day to day job activities?

   A. Rarely
   B. Occasionally
   C. Often

SHEET D

1. Why did you decide to start learning __________ ?
2. Why did you choose to plan and carry out this learning yourself?
   What factors did you consider?
3. Did you know exactly what you wanted to learn when you started?
   How did you figure out what you needed to learn?
   Did you change direction once you started your project?
4. How did you find out what resources were available?
   What factors determined what resources and activities you chose?
5. Did you plan particular times to learn?
   Any trouble finding time, money?
6. Were you aware of any particular constraints or limitations when you were deciding what to do?
7. What did you actually do to learn? (Sequence important)
8. How did you know you were progressing?
   How did you decide you had learned enough?
   Did you learn what you wanted?
   To the standard you wanted?
   How do you know?
9. Were you enthusiastic throughout?
   Did you get frustrated, bored, fed-up?
   How did you keep yourself going?
   Any encouragement?
10. Did you have difficulties?
    Did you get help?
    (Apply to any phase or activity)

APPENDIX II

COMPONENTS OF PROGRAM DESIGN

Functions of a teacher:

1. Helping learners diagnose needs (diagnostic function)
2. Planning a sequence of learning experience (planning function)
3. Creating conditions that will cause learners to want to learn (motivational function)
4. Selecting the most effective methods and techniques to produce learning (methodological function)
5. Providing the material and human resources (resource function)
6. Helping the learners measure outcomes of learning experience (evaluative function)

Taken from Knowles, M. S., The Modern Practice of Adult Education. New York: Association Press, 1970, p. 22.

Components of program design or decision points:

1. Identify possible educational activity
2. Deciding to proceed
3. Identifying and re-defining objectives
4. Deciding format, which includes selecting learning resources, choosing leaders, selecting and using methods, making time sequence and schedule, motivational elements, identifying criteria for evaluation
5. Fitting program into life patterns
6. Effecting program
7. Measuring and appraising results

Taken from Houle, C. O. The Design of Education, San Francisco: Josey Bass, 1973, 132.

Components of the Systems Approach Model:

1. Identifying instructional goal
2. Conducting instructional analysis (what needs to be learned)
3. Identifying entry behavior and characteristics
4. Writing performance objectives
5. Developing criterion referenced tests
6. Developing and selecting an instructional strategy
7. Developing and selecting instruction
8. Designing and conducting formative evaluation
9. Revise instruction
10. Conduct summative evaluation

Taken from Dick, W. and Carey, L. The Systematic Design of Instruction, Glenview, Ill.: Scott, Foresman and Co., 1978, p.8.

Planning involves six steps:

1. Developing a learner profile
2. Formulating objectives
3. Selecting learning method
4. Selecting resources
5. Developing a syllabus
6. Evaluating the course

Taken from Lenz, E. *The Art of Teaching Adults*. New York: Holt Rinehart and Winston, 1982.

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